

PATENT CLAIMS

1. Waste disposal site for storing waste and residues of solid organic or inorganic substances, composites and mixtures thereof,

characterized in that,

arranged in the ground (22) is a trough (12) comprising a trough bottom (14) and side walls (15), the trough bottom of which contains at least two water-tight layers (B, C) with constituents of a ceramic binder system (CBS).

2. Waste disposal site according to Claim 1, characterized in that arranged flat between the top water-tight layer (C) and the waste material (24, 24<sub>a</sub>) is at least one water-tight plastic film (26).
3. Waste disposal site according to Claim 2, characterized in that compacted debris is stored as waste material (24<sub>a</sub>) on the plastic film (26).
4. Waste disposal site according to any of Claims 1 to 3, characterized by an angle (w) of 90° to 150°, preferably about 130°, between trough bottom (14) and side wall (15).
5. Waste disposal site according to any of Claims 1 to 4, characterized in that the trough bottom (14) is inclined at an angle of up to about 10° with respect to the horizontal.
6. Waste disposal site according to any of Claims 1 to 5, characterized by a covering (20) which contains at least two water-tight layers (B, C) on which there is

arranged at least one seepage layer (D) for dissipating rainwater.

7. Waste disposal site according to Claim 6, characterized in that the seepage layer (D) is provided with drainage (28).
8. Waste disposal site according to Claim 6 or 7, characterized in that the seepage layer (D) is superposed by a humus layer (E) which possibly bears a thin slurry layer (F) as erosion protection.
9. Waste disposal site according to any of Claims 1 to 8, characterized by an inorganic binder, provided in the water-tight layers (B, C), for hydraulic setting compounds in which substances containing silica, alumina, iron oxides and/or lime are mixed, ground and burned until they are sintered.
10. Waste disposal site according to any of Claims 1 to 9, characterized in that the binder system comprises a liquid phase and a solid phase, the latter consisting of very fine-grained hydraulic binder and calcium hydroxide and also up to 10%, preferably about 4%, of organic component.
11. Waste disposal site according to Claim 10, characterized in that the liquid phase is a mixture of monomolecular and polymolecular surface-active substances, solubilizers, emulsifiers and catalysts having a content of propylenediamine, dimethyl ammonium chloride and isopropyl alcohol.
12. Waste disposal site according to at least one of the preceding claims, characterized in that an irreversible agglomeration of the fine and very fine particles of the treated layer is produced by means of the ceramic binder system, with a high degree of

compacting of the bottom fraction associated with the binder system.

13. Waste disposal site according to at least one of the preceding claims, characterized in that the waste (24, 24<sub>a</sub>) or other such substances stored in the interior (18) thereof are bound by adding mineral components, in particular by means of the ceramic binder system (CBS).
14. Waste disposal site according to at least one of the preceding claims, characterized by at least one further feature disclosed in the description and/or drawing.
15. Method of treating waste and residues of solid organic or inorganic substances, composites and mixtures thereof, in particular fractions of a waste disposal site according to at least one of the preceding claims, characterized in that the waste, in particular domestic waste, is dewatered, separated from contained biomass and then a separation of metal/plastics takes place, these being recycled into industrial cycles as secondary raw materials.
16. Method according to Claim 15, characterized in that, prior to introducing the waste into the waste disposal site, said waste is bound by adding mineral components and its intrinsic binding forces are activated.
17. Method according to Claim 15 or 16, characterized in that harmful substances in the waste are immobilized.
18. Method according to any of Claims 15 to 17, characterized by a separation of residues, following which separated-out mineral substances and/or specially fed-in slag or ashes are processed to form a ceramic binder.

19. Method according to any of Claims 15 to 18, characterized by the main fraction produced as this is carried out, in the form of:

water;  
biomass/compost/biogas;  
metals such as Al, Fe, Cu metals or the like;  
residual waste fractions;  
residues.

20. Method according to Claim 19, characterized in that mineral substances from the residual waste fraction and/or from the residues and/or from the ultimately produced ash are used as raw material to produce the binder (CBS).

21. Method according to any of Claims 18 to 20, characterized in that slag is sieved off and is mixed with slag sand and/or power station ash and/or tectosilicates during a comminution operation.

22. Method according to at least one of Claims 15 to 21, characterized in that in the composite or mixture the constituents are broken down or split by means of a pulse using a device which suddenly interrupts the flow of said composite or mixture.

23. Method according to Claim 22, characterized in that process air is fed in, in a rising flow path, in the opposite direction to the conveying path generated downwards in a spiral-like manner in a rotor (26) with a vertical axis.

24. Method according to Claim 23, characterized in that a shockwave is generated on an impact wall of the rotor between the layers of the composite.

25. Method according to Claim 23 or 24, characterized in that two wall surfaces arranged coaxially and at a radial distance to one another rotate relative to one another about their axis and the composites or mixtures moved by centrifugal forces are moved and broken down between impact surfaces projecting from the impact walls.
26. Method according to any of Claims 15 to 25, characterized in that the composite (10) is broken down when it collides with an impact wall (20) and its metal constituents are shaped into spheres, wherein possibly the layered metal constituent is rolled up during the shaping operation.
27. Method according to any of Claims 15 to 26, characterized in that the composite is subjected to a prior heat treatment before the splitting or breakdown operation, wherein possibly the discharge from the splitting or breakdown operation is subjected to a separation and/or sieving operation and/or to a cracking-off operation for non-iron metals.
28. Method according to any of Claims 15 to 27, characterized in that the metal and/or plastic parts are compacted following separation and possibly extruded following separation.
29. Method according to any of Claims 15 to 28, characterized in that the plastics are separated from one another by turbolaminar separation and/or identification.
30. Method according to at least one of Claims 15 to 29, characterized by at least one further feature disclosed in the description and/or drawing.

31. Apparatus for carrying out the method according to at least one of Claims 22 to 29, characterized in that the conveying path (q) for the composites (82) or the mixture is fed into the interior (94) of a rotor (92) in the opposite direction to that of the flow path (t) of process air.
32. Apparatus according to Claim 31, characterized in that the material supply (96) is arranged in the ridge region of the rotor (92)
33. Apparatus according to Claim 20 or 32, characterized in that the conveying path (t) runs between two wall surfaces (90, 90<sub>a</sub>) that can be moved relative to and at a distance (g) from one another, from which wall surfaces impact surfaces (90, 90<sub>a</sub>) that are offset with respect to one another project on either side into the conveying path.
34. Apparatus according to Claim 33, characterized in that the wall surfaces (90, 90<sub>a</sub>) are coaxially curved.
35. Apparatus according to Claim 33 or 34, characterized in that the wall surfaces (90, 90<sub>a</sub>) are mounted such that they can rotate in the rotation direction ( $y_1$ ) of the rotor (92).
36. Apparatus according to at least one of Claims 31 to 35, characterized by at least one further feature disclosed in the description and/or drawing.